From: Tricia Pfeiffer
To: Judy Bloom; Robert Parker
Subject: Schilke analysis
Date: 02/14/2013 10:34 AM
Attachments: 2363_001.pdf

FYI

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----- Forwarded by Tricia Pfeiffer/R8/USEPA/US on 02/14/2013 10:30 AM -----

From: "Roberts, Kris D." <kroberts@nd.gov>
To: jacki <jboid@dia.net>
Cc: Tricia Pfeiffer/R8/USEPA/US@EPA, "Glatt, Dave D." <dglatt@nd.gov>, "Fewless, Dennis R." <dfewless@nd.gov>
Date: 02/14/2013 09:48 AM
Subject: FW: Attached Image/Document

Jacki:
Here is the analysis for the creek in the west pasture. Again, there is a number for DRO (diesel range organics) but Jim Quarnstrom again states that the organic compounds detected are in the instrument range for DRO, but are NOT DRO components.
Jim has, and will send to me when he find it, a written explanation of the issue, and I will send it along to you as soon as I get it. And Jim isn't the only one. I have run into and article or so on this very issue as well, but have no idea anymore where to look. If you think about it, common decaying plants and algae is what got cooked up underground to form petroleum/crude oil, so it isn't much of a surprise that when we look at weed filled creeks today, we will find various organic compounds that closely resemble similar compounds in crude oil.
Now, for the rest of the analysis, sulfate was really high when we sampled (3,310 mg/L) and chloride was not detected (high reporting level due to the high sulfate) above 60 mg/L. Bromide was not detected either, at much lower (<0.05 mg/L), so it is pretty clear that there is no oilfield brine or flow back water showing up there. Chloride is a very conservative compound often used as a groundwater tracer. In other words, chloride does not adhere or combine with soil materials, and so flows with groundwater, with little or no loss in concentration. If there was oilfield waters showing up in the creek, I would expect higher levels of chloride, and bromide above 1 mg/L. Strontium is considerably higher than in either of your wells at 6.370 mg/L. However, as we discussed, strontium is closely related to calcium, which shows up in the creek at 457 mg/L.
Again, I hope this is helpful to you, and I will get that article to you as quickly as possible.

From: DOHM-5065-4th [mailto:ajohnson@nd.gov]
Sent: Thursday, February 14, 2013 9:59 AM
To: Roberts, Kris D.
Subject: Attached Image/Document